Preventive Cardiology – Rehabilitation and Sports Cardiology, Cardiovascular Rehabilitation, Outcomes

Cardiac rehabilitation in young patients post acute coronary syndrome: the keystone in cardiovascular care

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Introduction: Cardiac Rehabilitation (CR) programs are recommended as part of cardiovascular management for patients (pts) following an Acute Coronary Syndrome (ACS). However, despite the well-established benefits, pts are frequently under-referenced.

Purpose: To compare risk factor management and adverse outcomes in young pts with ACS undergoing either a CR program or standard care (SC).

Methods: Single center retrospective study of pts younger than 55 years, with an ACS from January 2017 to May 2023. Following a cardiac event, pts could undergo SC or integrate CR program alongside SC. Adverse outcomes were defined as re-infarction, cardiovascular admissions and death, major cardiovascular events (MACE) was a composite of prior variables. For risk factor management we assessed cLDL, HgA1C, obesity (BMI $\geq$ 30kg/m2) and smoking status at baseline and during follow-up (FUP). Propensity score matching based on age and sex was used to generate comparable groups. Student T, chi-square and linear regression were used for statistical analysis.

Results: We included 424 pts, 226 pts were selected based on propensity score matching (1:1), 86% males, mean age 47$\pm$6 years, 65% had 1 vessel disease and 84% underwent complete revascularization. At baseline, 51% of pts had hypertension, 66% dyslipidemia (mean cLDL 99 $\pm$45 mg/dl), 15% diabetes, 70% smoker, 15% obese, with no differences between groups. During a FUP of 3.5$\pm$2 years, significant cLDL reduction was noted in both groups but CR pts had a 2.4 fold increased odd of meeting cLDL goal (<55 mg/dl) compared to SC pts (30 vs 17%, OR 2.4, CI1.7-4.6). In CR pts, a 12.5-fold lower odds of smoking was noted (OR 0.08, CI 0.03-0.17) and significantly lower obesity rates, with a 30% odd reduction of obesity (OR 0.7, CI 0.6-0.8) when compared to SC. During FUP, SC pts experienced significantly higher incidence of all adverse outcomes expect for death (MACE: 33vs4 p=<0.001; re-infarction: 17vs2 p=<0.001; CV admission: 27vs2, p=<0.001; death:6vs3, p=0.3). SC was an independent predictor of MACE, re-infarction and CV admission after adjustment for confounders.

Conclusion: These results highlight the pivotal role of CR in not only achieving optimal risk factor control but also in substantially reducing adverse outcomes in this young ACS population. Efforts should be intensified to enhance CR referral rates, particularly in the younger demographic, to optimize cardiovascular management and improve long-term outcomes post-ACS.